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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/529,044

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Joo-Ho Kim

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EXAMINER

BERNATZ, KEVIN M

ART UNIT

PAPER NUMBER

1794

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DELIVERY MODE

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PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/529,044	<b>Applicant(s)</b> KIM ET AL.	
	<b>Examiner</b> Kevin M. Bernatz	<b>Art Unit</b> 1794	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 27 February 2009.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1,3,5,7,8 and 10 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1 and 5 is/are allowed.
- 6) ☒ Claim(s) 3,7,8 and 10 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 27 February 2009 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                     | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### ***Response to Amendment***

1. Amendments to the drawings and claims 1, 3, 5, 7, 8 and 10, and cancellation of claims 2, 6, 9 and 11, filed on February 27, 2009, have been entered in the above-identified application.
2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

### ***Priority***

3. The ribbon copy of JP 2002-281783 has been received and placed in the application file.

### ***Claim Rejections - 35 USC § 102***

4. Claims 3, 7, 8 and 10 are rejected under 35 U.S.C. 102(a), (b) and/or (e) as being anticipated by Moritani et al. (U.S. Patent No. 6,411,591 and/or WO 99/14764) for the reasons of record as set forth in Paragraph No. 8 of the Office Action mailed on October 2, 2008.

Regarding amended claim 8, Moritani et al. disclose mask layers comprising "at least one of [Si – Group IVA element] in 10 to 40 atomic percent and also containing oxygen. The Examiner notes that this covers the embodiment "consisting of" SiO<sub>x</sub> (col. 1, lines 40 – 60).

***Claim Rejections - 35 USC § 103***

5. Claims 3, 7, 8 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Moritani et al. (*either reference*) as applied above.

Moritani et al. is relied upon as described above.

While the Examiner maintains that Moritani et al. disclose the claimed invention with sufficient specificity to anticipate the claimed limitations, the Examiner acknowledges that Moritani et al. fails to explicitly disclose an embodiment comprising AuO<sub>x</sub>, or consisting of SiO<sub>x</sub>.

However, the broadest teachings of Moritani et al. teach that mask layers comprising a singular Group Ib element (*i.e. Au*) or a singular Group IVa element (*i.e. Si*), combined with oxygen, are functional equivalents to the mask layer material used in their explicit embodiments (*col. 1, lines 40 – 60 and examples*).

Substitution of functional equivalents requires no express motivation as long as the prior art recognizes the functional equivalency. In the instant case, singular elements combined with oxygen are functional equivalents in the field of suitable mask layer materials, as taught by Moritani et al. above. *In re Fount* 213 USPQ 532 (CCPA 1982); *In re Siebentritt* 152 USPQ 618 (CCPA 1967); *Graver Tank & Mfg. Co. Inc. v. Linde Air Products Co.* 85 USPQ 328 (USSC 1950). *The Examiner further notes that there are a plethora of applied/cited prior art references cited which clearly indicate that singular element + oxygen mask layers are within the knowledge of one of ordinary skill in the art.*

6. Claims 3, 7, 8 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over IDS reference to Lin et al. (2002 IEEE journal article titled “*Study of a super-resolution optical structure: polycarbonate/ZnS-SiO<sub>2</sub>/ZnOx/ZnS-SiO<sub>2</sub>/Ge<sub>2</sub>Sb<sub>2</sub>Te<sub>5</sub>/ZnS-SiO<sub>2</sub>*”), IDS journal article to Fuji et al. (*Jpn. J. App. Phys.*, v39, 2000, pp 980 – 981), Tseng et al. (U.S. Patent No. 6,506,543 B1) and/or Chen (U.S. Patent App. No. 2003/0228462 A1) in view of Moritani et al. ('591 B1 and/or WO '864) for the reasons of record as set forth in Paragraph No. 12 of the Office Action mailed on October 2, 2008.

Regarding amended claim 8, Moritani et al. disclose mask layers comprising “at least one of [Si – Group IVA element] in 10 to 40 atomic percent and also containing oxygen. The Examiner notes that this covers the embodiment “consisting of” SiO<sub>x</sub> (*col. 1, lines 40 – 60*).

#### ***Allowable Subject Matter***

7. The following is a statement of reasons for the indication of allowable subject matter: claims 1 and 5 require a mask layer formed from WO<sub>x</sub> (*tungsten oxide*). The Examiner finds Applicants' arguments convincing, in that Bussjager et al. only teach the use of WO<sub>x</sub> layers as a *recording layer* material, and not as a material of a *mask layer*. The functions of a *recording layer* and a *mask layer* are significantly unique that one of ordinary skill in the art would not have been motivated to use a material designed for one, in the other, absent an explicit teaching in the art that such a use is desirable.

***Response to Arguments***

**8. The rejection of claims 1 and 5 under 35 U.S.C § 103(a) – Various references in view of Bussjager et al.**

The above noted rejection has been withdrawn in view of applicant(s) arguments, which have been found persuasive. Specifically, applicant(s) argue that Bussjager et al. fail to teach the use of a WO<sub>x</sub> material as a *mask* layer, but only teach its use in a *recording* layer, which is deemed to not be anticipated, nor rendered obvious, by the above noted rejection.

**9. The rejection of claims 3, 7, 8 and 10 under 35 U.S.C § 102 and/or 103(a) – Moritani et al. alone, or use in combination with various references**

Applicant(s) argue(s) that Moritani et al. fail to disclose the use of a mask layer comprising AuO<sub>x</sub> or consisting of SiO<sub>x</sub> with sufficient specificity to anticipate or render obvious the claimed invention (*pages 6, 7 and 10 of response*). The Examiner respectfully disagrees.

As admitted by Applicants, Moritani et al. does disclose AuO<sub>x</sub> (*page 6 of response: “Gold is not mentioned any further than in a laundry list of elements available for use”*). While Moritani et al. may not use a specific example with AuO<sub>x</sub>, they are not required to disclose *any* examples, much less examples for each and every embodiment encompassed by their disclosure. The fact that AuO<sub>x</sub> is covered by the claimed disclosure, as well as mask layers consisting of SiO<sub>x</sub>, is sufficient to anticipate, or in the very least, render obvious the claimed invention. The Examiner notes that the

additional prior art relied upon above, as well as the prior art cited as pertinent in the prior office action, all suggest that single element-oxide based mask layers are within the knowledge of one of ordinary skill in the art. The Examiner notes that presently there is no evidence of record that a mask layer consisting of  $\text{SiO}_x$  or  $\text{AuO}_x$  will exhibit unexpected performance relative to the various other mask layer materials disclosed in the prior art.

### ***Conclusion***

10. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Applicants' amendment resulted in embodiments not previously considered (i.e. removal of the requirement for a "high melting point metal oxide" from claims 1 and 3,

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removal of the requirement for “irreversible physical changes” and adding the requirement for “consisting of SiO<sub>x</sub>” in claim 8) which necessitated the new grounds of rejection, and hence the finality of this action.

11. Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Kevin M. Bernatz whose telephone number is (571) 272-1505. The Examiner can normally be reached on M-F, 8:30 AM - 5:00 PM.

If attempts to reach the Examiner by telephone are unsuccessful, the Examiner's supervisor, Rena Dye can be reached on (571) 272-3186. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Kevin M. Bernatz/  
Primary Examiner, Art Unit 1794

May 18, 2009